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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/709,138	04/15/2004	Kei MURAYAMA	80300(302750)	3137

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EXAMINER	
BAREFORD, KATHERINE A	

ART UNIT	PAPER NUMBER
1792	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/709,138	Applicant(s) MURAYAMA, KEI	
	Examiner Katherine A. Bareford	Art Unit 1792	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 May 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,4,7 and 10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,4,7 and 10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed May 26, 2009 has been received and entered. With the entry of the amendment, claims 2, 3, 5, 6, 8, 9, 11 and 12 have been canceled, and claims 1, 4, 7 and 10 are pending for examination.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1, 4, 7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lin et al (US 5167992) in view of the admitted state of the prior art, McCormack et al (US 3443988), Miller (US 4668533) and WO 02/099162 A2 (hereinafter '162)

Lin teaches a method of electroless plating. Column 1, lines 5-10. A substrate is prepared that has an insulating body and a conductive pattern formed on the insulating body. Column 3, lines 45-55 and column 4, lines 30-50. The substrate is to be used for microelectronic interconnect substrates or circuit boards (that is, a wiring substrate). Column 3, lines 45-55. A catalytic metal serving as a catalyst of an electroless plating process is adhered onto the insulating body and the conductive pattern. Column 5, lines 35-60. An oxidizing agent, which can oxidize the catalytic metal and make the catalytic

metal in an inactive state to the electroless plating is applied to the catalytic metal. Column 5, line 60 through column 6, line 20 and column 7, lines 25-35. It would be applied in a space portion S between the conductive pattern features (as it is shown being applied to the entire surface). Column 5, line 60 through column 6, line 20. Then a metal layer is selectively formed on the conductive pattern by electroless plating. Column 6, lines 20-30.

Claim 4: the adhering of the catalytic metal onto the insulating body and the conductive pattern includes coating an activating solution containing ions of the catalytic metal to deposit the catalytic metal by an oxidation reduction reaction. Column 5, lines 50-60 and column 7, lines 20-25.

Claim 7: the catalytic metal is palladium. Column 5, lines 45-60. The metal formed by electroless plating can be a nickel layer. Column 6, lines 20-40.

Claim 10: the oxidizing agent can be sulfuric acid (H_2SO_4). Column 7, lines 20-30.

Lin teaches all the features of these claims except that (1) the conductive pattern includes electrodes to be used with connection pads, (2) the space portion between the electrodes has a plurality of different values, (3) that the oxidizing agent is coated selectively so that the oxidizing agent is formed selectively only on all parts of the space portion which are smaller than 30 microns, out of the space portion between the electrodes, to prevent short circuits, (4) the ink jet printing of the oxidizing agent.

The admitted state of the prior art teaches that when forming wiring substrates with conductive patterns, it is well known for the wiring patterns to include electrodes

formed of copper which then are overplated to enhance reliability, and the electrodes form connections to the electronic parts. See paragraphs [0002] – [0008] of the specification. It is also well known for the pitch of the copper electrodes on the wiring substrate to be narrowed to 60 microns or less, and that short circuit problems occur when plating with these narrowed spaces present. See paragraphs [0002]-[0008] of the specification. It is also well known for the space portions between the copper electrodes to vary over the substrate. See paragraph [0006] of the specification. It is also well known to desire to form a nickel layer selectively on the copper electrodes by electroless plating. See paragraphs [0002] – [0008] of the specification. This electroless plating provides plating without using solder resist. See paragraphs [0002] – [0008] of the specification.

McCormack teaches that when electroless plating a substrate, it is known to be desired to only coat certain areas of a substrate. Column 1, lines 10-20 and 30-45. McCormack teaches that to provide such selective coating, it is known to first treat the entire substrate (base) with a catalyst material, such as palladium to render the substrate senstitive to the reception of electroless plating. Column 5, lines 30-45. Then a "poison" material that deactivates the catalyst (neutralizes, lowers catalytic activity) is applied to limited selected areas of the based material, such as by printing or silk screen stenciling. Column 5, lines 30-45 and column 2, lines 15-35. Thereafter, the base is contacted with an electroless metal deposition solution to deposit electroless metal deposition solution to deposit electroless metal on the sensitized areas not coated with

the "poison" containing material. Column 5, lines 30-45. The poisons can include sulfur, used in elemental or compound form. column 2, lines 25-35. The poisons can be dissolved in appropriate solvent, such as water, and applied. Column 3, lines 1-10 and 48-50.

Miller teaches ink jet printing as a well known printing method to apply materials for electroless plating in a selective form, such as sensitizers and activators. Column 2, lines 40-50, column 3, lines 45-60 and column 4, lines 15-30. The substrate can be an active integrated circuit. Column 3, lines 25-35.

'162 teaches performing electroless plating (page 1), where the substrate is provided with a pre-determined pattern of catalytic material using a pattern transfer mechanism such as ink-jet printing (page 3). '162 clarifies that when using ink-jet printing, minimum feature sizes on the order of 20 microns are possible. Page 3.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to (1) (2) modify Lin to provide that the conductive pattern includes electrodes spaced different distances apart and that these electrodes can be less than 60 microns apart as suggested by the admitted state of the prior art in order to provide a desirable circuit and microelectronic pattern because Lin teaches forming conductive patterns on insulating substrates for circuit and microelectronic usage, and the admitted state of the prior art teaches that conductive patterns on wiring substrates for such purposes conventionally have copper electrodes spaced different distances apart and that the electrodes can be less than 60 microns apart. It further would have

been obvious to perform routine experimentation to optimize the distance apart to less than 30 microns apart in at least some cases as the admitted state of the prior art provides that less than 60 microns apart is conventional, and 30 microns is included in the range of less than 60 microns. As to the electrodes being on which connection pads of an electronic part are connected, the admitted state of the prior art teaches that the electrodes are used to provide connection to the electronic parts, and thus would connect with connecting devices or "pads" on the electronic parts. (3) It further would have been obvious to modify Lin in view of the admitted state of the prior art to apply the oxidizing agent selectively to the non electrode "space" portion, including all the parts of the space portion of less than 30 microns apart, and only those spaces, as suggested by McCormack, in order to prevent plating in the unwanted areas between the electrodes, because Lin teaches that it is desired to deactivate catalytic coating on the dielectric surface (i.e. the spaces between conductors) to prevent plating and resulting short circuits and the admitted state of the art teaches that a particular problem which such plating occurs in narrow spaces, which are less than 60 microns apart (which would be inclusive of less than 30 microns apart); and McCormack teaches that a deactivating poison material can desirably be applied specifically to areas where plating is not desired by a selective coating process such as printing. By printing selectively in the areas desired not to have any plating, the amount of material used can beneficially be reduced. As to providing the material on all spaces less than 30 microns apart and only those spaces, as noted above the admitted state of the prior art suggests problems

in spaces less than 60 microns apart, which would provide a range of just below 60 microns and below, and less than 30 microns would provide a range within that just below 60 microns and below range, and In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). Therefore, when optimizing the areas on which oxidizing agent is to be applied, it would have been obvious to select the range of less than 30 microns. Applicant has provided no showing of unexpected results specifically for the range of less than 30 microns, especially as one of ordinary skill in the art would expect the problem of short circuits to grow as spaces become closer together, as the problem is one that occurs because of narrowness between spaces. (4) It further would have been obvious to modify Lin in view of the admitted state of the prior art and McCormack to provide this oxidizing agent in the narrow spaces of less than 30 microns apart by a process known to allow application of patterns with features of less than 30 microns such as ink-jet printing as suggested by Miller and '162 with an expectation of desirable printing results, as McCormack teaches that selective application of deactivating material can be by printing, and Miller teaches a well known printing method for selective application of materials for electroless plating is by ink jet printing, with '162 teaching that features for materials applied in an electroless process by ink-jet printing can be less than 30 microns, such as on the order of 20 microns.

4. Claims 1, 4 and 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zeller (US 4770899) in view of the admitted state of the prior art, McCormack et al (US 3443988), Miller (US 4668533) and WO 02/099162 A2 (hereinafter '162).

Zeller teaches a method of electroless plating. Column 1, line 65 through column 2, line 12. A substrate is prepared that has an insulating body and a conductive pattern formed on the insulating body. Column 2, lines 20-50. The substrate is to be used for interconnect integrated circuits (i.e. wiring substrate). Column 1, lines 5-15. A catalytic metal serving as a catalyst of an electroless plating process is adhered onto the insulating body and the conductive pattern. Column 2, lines 50-68. An oxidizing agent, which can oxidize the catalytic metal and make the catalytic metal in an inactive state to the electroless plating is applied to the catalytic metal. Column 3, lines 1-12 (sodium hydroxide is a known oxidizing agent, and it deactivates the catalytic metal). It would be applied in a space portion S between the conductive pattern features (as it is shown being applied to the entire surface). Column 3, lines 1-12 and figure 3. It is desired to prevent plating on the space portion to prevent shorts. Column 2, lines 8-11 and column 1, lines 55-60. Then a metal layer is selectively formed on the conductive pattern by electroless plating. Column 3, lines 10-25 and figure 4.

Claim 4: the adhering of the catalytic metal onto the insulating body and the conductive pattern includes coating an activating solution containing ions of the catalytic metal to deposit the catalytic metal by an oxidation reduction reaction. Column

2, lines 45-65 (note the palladium chloride and hydrochloric acid used, which will have the claimed reaction).

Claim 7: the catalytic metal is palladium. Column 2, lines 45-65. The metal formed by electroless plating can be a nickel layer. Column 3, line 55 through column 4, line 5.

Zeller teaches all the features of these claims except that (1) the conductive pattern includes electrodes to be used with connection pads, (2) the space portion between the electrodes has a plurality of different values, (3) that the oxidizing agent is coated selectively so that the oxidizing agent is formed selectively only on all parts of the space portion which are smaller than 30 microns, out of the space portion between the electrodes, to prevent short circuits, (4) the ink jet printing of the oxidizing agent.

The admitted state of the prior art teaches that when forming wiring substrates with conductive patterns, it is well known for the wiring patterns to include electrodes formed of copper which then are overplated to enhance reliability, and the electrodes form connections to the electronic parts. See paragraphs [0002] – [0008] of the specification. It is also well known for the pitch of the copper electrodes on the wiring substrate to be narrowed to 60 microns or less, and that short circuit problems occur when plating, with such narrowed spaces present. See paragraphs [0002] – 0008] of the specification. It is also well known for the space portions between the copper electrodes to vary over the substrate. See paragraph [0006] of the specification. It is also well known to desire to form a nickel layer selectively on the copper electrodes by electroless

plating. See paragraphs [0002] – [0008] of the specification. This electroless plating provides plating without using solder resist. See paragraphs [0002] – [0008] of the specification.

McCormack teaches that when electroless plating a substrate, it is known to be desired to only coat certain areas of a substrate. Column 1, lines 10-20 and 30-45. McCormack teaches that to provide such selective coating, it is known to first treat the entire substrate (base) with a catalyst material, such as palladium to render the substrate senstitive to the reception of electroless plating. Column 5, lines 30-45. Then a "poison" material that deactivates the catalyst (neutralizes, lowers catalytic activity) is applied to limited selected areas of the based material, such as by printing or silk screen stenciling. Column 5, lines 30-45 and column 2, lines 15-35. Thereafter, the base is contacted with an electroless metal deposition solution to deposit electroless metal deposition solution to deposit electroless metal on the sensitized areas not coated with the "poison" containing material. Column 5, lines 30-45. The poisons can include sulfur, used in elemental or compound form. Column 2, lines 25-35. The poisons can be dissolved in appropriate solvent, such as water, and applied. Column 3, lines 1-10 and 48-50.

Miller teaches ink jet printing as a well known printing method to apply materials for electroless plating in a selective form, such as sensitizers and activators. Column 2, lines 40-50, column 3, lines 45-60 and column 4, lines 15-30. The substrate can be an active integrated circuit. Column 3, lines 25-35.

‘162 teaches performing electroless plating (page 1), where the substrate is provided with a pre-determined pattern of catalytic material using a pattern transfer mechanism such as ink-jet printing (page 3). '162 clarifies that when using ink-jet printing, minimum feature sizes on the order of 20 microns are possible. Page 3.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to (1) (2) modify Zeller to provide that the conductive pattern includes electrodes spaced different distances apart and that these electrodes can be less than 60 microns apart as suggested by the admitted state of the prior art in order to provide a desirable circuit and microelectronic pattern because Zeller teaches forming conductive patterns on insulating substrates for integrated circuits, and the admitted state of the prior art teaches that conductive patterns on wiring substrates for such purposes conventionally have copper electrodes spaced different distances apart and that the electrodes can be less than 60 microns apart. It further would have been obvious to perform routine experimentation to optimize the distance apart to less than 30 microns apart in at least some cases as the admitted state of the prior art provides that less than 60 microns apart is conventional, and 30 microns is included in the range of less than 60 microns. As to the electrodes being on which connection pads of an electronic part are connected, the admitted state of the prior art teaches that the electrodes are used to provide connection to the electronic parts, and thus would connect with connecting devices or “pads” on the electronic parts. (3) It further would have been obvious to modify Zeller in view of the admitted state of the prior art to

apply the oxidizing agent selectively to the non electrode "space" portion, including all the parts of the space portion of less than 30 microns apart, and only those spaces, as suggested by McCormack, in order to prevent plating in the unwanted areas between the electrodes, because Zeller teaches that it is desired to deactivate catalytic coating on the dielectric surface (i.e. the spaces between conductors) to prevent plating and resulting short circuits and the admitted state of the art teaches that a particular problem which such plating occurs in narrow spaces, which are less than 60 microns apart (which would be inclusive of less than 30 microns apart); and McCormack teaches that a deactivating poison material can desirably be applied specifically to areas where plating is not desired by a selective coating process such as printing. By printing selectively in the areas desired not to have any plating, the amount of material used can beneficially be reduced. As to providing the material on all spaces less than 30 microns apart and only those spaces, as noted above the admitted state of the prior art suggests problems in spaces less than 60 microns apart, which would provide a range of just below 60 microns and below, and less than 30 microns would provide a range within that just below 60 microns and below range, and In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). Therefore, when optimizing the areas on which oxidizing agent is to be applied, it would have been obvious to select the range of less than 30 microns. Applicant has provided no showing of unexpected results specifically for the range of less than 30 microns,

especially as one of ordinary skill in the art would expect the problem of short circuits to grow as spaces become closer together, as the problem is one that occurs because of narrowness between spaces. (4) It further would have been obvious to modify Zeller in view of the admitted state of the prior art and McCormack to provide this oxidizing agent in the narrow spaces of less than 30 microns apart by a process known to allow application of patterns with features of less than 30 microns such as ink-jet printing as suggested by Miller and '162 with an expectation of desirable printing results, as McCormack teaches that selective application of deactivating material can be by printing, and Miller teaches a well known printing method for selective application of materials for electroless plating is by ink jet printing, with '162 teaching that features for materials applied in an electroless process by ink-jet printing can be less than 30 microns, such as on the order of 20 microns.

5. Sugama (US 4927462) notes that sodium hydroxide is a known oxidation agent. Column 3, lines 20-35.

Response to Arguments

6. Applicant's arguments filed May 26, 2009 have been fully considered but they are not persuasive.

Applicant argues that McCormack has been cited for teaching that the oxidizing agent is selectively applied to the non-electrode space portion, including all the parts of

the space portion of less than 30 microns apart, the Examiner notes that McCormack has not been cited as the only reference or suggestion as to this issue, rather that she has cited the combination of Lin, the admitted state of the prior art and McCormack; with the combination of the references suggesting the selective application of the oxidizing agents to the space portion of less than 30 microns as discussed in the rejection above. McCormack specifically provides that suggestion that deactivating poison material can desirably be applied specifically to areas where plating is not desired by a selective coating process such as printing.

As to the argument by applicant that the combination of Lin, admitted state of the prior art and McCormack does not teach, mention or suggest that short circuits, which would normally occur in the space portion between electrodes smaller than 30 microns is prevented by the method of claim 1 and only providing the coating in these portions, the Examiner notes that the admitted state of the prior art suggests problems in spaces less than 60 microns apart, which would provide a range of just below 60 microns and below, and less than 30 microns would provide a range within that just below 60 microns and below range, and In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976). Therefore, when optimizing the areas on which oxidizing agent is to be applied, it would have been obvious to select the range of less than 30 microns. Applicant has provided no showing of unexpected results specifically for the range of less than 30 microns, especially as one of ordinary

skill in the art would expect the problem of short circuits to grow as spaces become closer together, as the problem is one that occurs because of narrowness between spaces.

Furthermore, applicant provides in the arguments at page 5 of the response that the capability of applying the oxidizing coating into the region of less than 30 microns has not been provided by the teachings of the prior art and that coating spaces less than 30 microns is more difficult than coating larger areas up to 60 microns. However, the Examiner has noted the capability of ink-jet printing features less than 30 microns as discussed in the rejection above above. Furthermore, the Examiner does not note any indication in the prior art (referred to by applicant) that printing of features less than 30 microns is harder than less than 60 microns (i.e. 30 to almost 60 microns). As well, the Examiner notes no indication in applicant's specification that special, unusual or novel features must be provided by the ink jet apparatus to print features less than 30 microns; which would apparently be needed if it was previously unknown to have the ability to ink jet print less than 30 micron features.

As to the citation of Miller and '162 as to the performing of ink jet printing (as applying to both the rejection where the primary reference is Lin and the rejection where the primary reference is Zeller), applicant argues that the "sensitizer" of Miller and the "catalytic material" of '162 correspond more closely to the "catalytic material" cited in claim 1 rather than the ink jet printing of "the oxidizing material" as claimed. The Examiner remains of the position that Miller and '162 further suggest in

combination with the other cited art that the deactivation oxidizing agent can also be applied by ink jet printing. The suggestion from McCormack is that the deactivating material can be applied by printing, and Miller exemplifies that various different layer materials for electroless plating processes can be printed by ink jet printing, which would include activators (column 2, lines 30-35) and sensitizers (column 2, lines 40-45) and note the different layers of example 1, 3 and 4. Moreover, Miller indicates that the "ink jet" ink can be "any liquid, solution or suspension capable of being sprayed through the jet to obtain a controlled pattern on the substrate" (column 2, lines 55-65). Therefore, although Miller does not exemplify applying the oxidizing agent by ink jet printing, one of ordinary skill in the art would understand that as Miller indicates that any sprayable liquid can be used, and indicates that different layer materials can be applied by ink jet where a pattern is desirable, it would be expected that the oxidizing agent layer would be desirably applied by ink jet printing as well, as a known and desirable printing method in electroless plating applications. Moreover, '162 also indicates that aqueous or alcohol based solutions can be deposited (see page 5 for solvents listed) and as described by Lin the deactivation solution can be aqueous or alcohol based (column 6, lines 1-20; and Zeller also describes an aqueous deactivation solution, column 3, lines 5-10), further indicating the expected ability of the claimed oxidizing agent to be ink jet applied. As well, the Examiner notes no indication in applicant's specification that special, unusual or novel features must be provided by the ink jet apparatus to print the deactivation solution.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Katherine A. Bareford whose telephone number is (571) 272-1413. The examiner can normally be reached on M-F(6:00-3:30) First Friday Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Timothy H. Meeks can be reached on (571) 272-1423. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Katherine A. Bareford/
Primary Examiner, Art Unit 1792